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(FILE 'HOME' ENTERED AT 20:59:22 ON 27 JUL 2001)

FILE 'BIOSIS, CAPLUS, EMBASE, MEDLINE, CANCERLIT' ENTERED AT 20:59:34 ON 27 JUL 2001

L1	38641	S	NEURITE
L2	15742	S	(NEURITE OUTGROWTH)
L3	7234	S	L2 AND NEURONS
L4	4869	S	L3 AND CELLS
L5	10	S	L4 AND LUMINESCENT?

ANSWER 1 OF 10 MEDLINE
AN 2001292216 MEDLINE
DN 21267040 PubMed ID: 11356871
TI A common exocytotic mechanism mediates axonal and dendritic outgrowth.
AU Martinez-Arca S; Coco S; Mainguy G; Schenk U; Alberts P; Bouille P; Mezzina M; Prochiantz A; Matteoli M; Louvard D; Galli T
CS Membrane Traffic and Neuronal Plasticity, Institut National de la Sante et de la Recherche Medicale U536, Institut du Fer-a-Moulin, F-75005 Paris, France.
SO JOURNAL OF NEUROSCIENCE, (2001 Jun 1) 21 (11) 3830-8.
Journal code: JDF; 8102140. ISSN: 1529-2401.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200106
ED Entered STN: 20010625
Last Updated on STN: 20010625
Entered Medline: 20010621
AB Outgrowth of the dendrites and the axon is the basis of the establishment of the neuronal shape, and it requires addition of new membrane to both growing processes. It is not yet clear whether one or two exocytotic pathways are responsible for the respective outgrowth of axons and dendrites. We have previously shown that tetanus neurotoxin-insensitive vesicle-associated membrane protein (TI-VAMP) defines a novel network of tubulovesicular structures present both at the leading edge of elongating dendrites and axons of immature hippocampal **neurons** developing in primary culture and that TI-VAMP is an essential protein for **neurite outgrowth** in PC12 **cells**. Here we show that the expression of the N-terminal domain of TI-VAMP inhibits the outgrowth of both dendrites and axons in **neurons** in primary culture. This effect is more prominent at the earliest stages of the development of **neurons** in vitro. Expression of the N-terminal domain deleted form of TI-VAMP has the opposite effect. This constitutively active form of TI-VAMP localizes as the endogenous protein, particularly concentrating at the leading edge of growing axons. Our results suggest that a common exocytotic mechanism that relies on TI-VAMP mediates both axonal and dendritic outgrowth in developing **neurons**
.
CT Check Tags: Animal; In Vitro; Support, Non-U.S. Gov't
*Axons: PH, physiology
Brain: CY, cytology
Brain: ME, metabolism
Calcium-Binding Proteins: ME, metabolism
Cells, Cultured
*Dendrites: PH, physiology
Electroporation
Endocytosis: PH, physiology
*Exocytosis: PH, physiology
Gene Expression
Luminescent Proteins: GE, genetics
Membrane Proteins: GE, genetics
Membrane Proteins: ME, metabolism
Mice
Neurons: CY, cytology
***Neurons: ME, metabolism**
Protein Isoforms: GE, genetics
Protein Isoforms: ME, metabolism
Protein Structure, Tertiary: PH, physiology
Rats
Recombinant Fusion Proteins: GE, genetics
Recombinant Fusion Proteins: ME, metabolism
Ribonucleoproteins: ME, metabolism
Transfection
RN 147336-22-9 (green fluorescent protein); 157546-56-0 (syntaxin)
CN 0 (Calcium-Binding Proteins); 0 (Golgi matrix protein, 130 kDa); 0 (**Luminescent** Proteins); 0 (Membrane Proteins); 0 (Protein Isoforms); 0 (Recombinant Fusion Proteins); 0 (Ribonucleoproteins); 0 (calreticulin); 0 (vesicle-associated membrane protein)

L5 ANSWER 2 OF 10 MEDLINE
AN 2001234648 MEDLINE

regulator controlling reproductive functions. However, the scattered distribution of GnRH neurones in the mammalian brain has hindered studies on the development and differentiation of GnRH neurones. In the present study, we used the immortalized GnRH-producing GT1-1 **cells** to examine whether activation of protein kinase C (PKC) pathway with 12-O-tetradecanoyl-13-acetate (TPA) induces morphological and functional differentiation of GnRH neurones. TPA induced **neurite outgrowth** and inhibited proliferation of GT1-1 **cells** that were specifically antagonized by cotreatment of PKC inhibitor, calphostin C. The functional significance of TPA-induced differentiation of GT1-1 **cells** was manifested in part by the changes in the effects of gamma-aminobutyric acid (GABA) on intracellular Ca2+ levels. In untreated GT1-1 **cells**, activation of GABA-A receptor with 10 microM muscimol increased intracellular Ca2+ levels, whereas such stimulatory effects disappeared in GT1-1 **cells** bearing neurites. Accordingly, muscimol could not stimulate GnRH release in TPA-treated GT1-1 **cells**. To elucidate the molecular mechanism underlying TPA-induced **neurite outgrowth**, we performed differential display reverse transcription-polymerase chain reaction. Among several genes that are affected by TPA treatment, we found a significant induction of beta-catenin mRNA expression. Along with the rapid induction of beta-catenin protein levels, we observed that beta-catenin was reallocated from cell-cell adhesion sites to the growth cones within 3 h of TPA treatment. Transient transfection studies with green fluorescent protein as a reporter gene demonstrated that beta-catenin overexpression alone can promote **neurite outgrowth** in GT1-1 **cells**. Moreover, TPA was found to increase the transcription-activational roles of beta-catenin. Together, these data provide evidence that beta-catenin is involved in the TPA-induced functional differentiation of immortalized GnRH neurones.

CT Check Tags: Support, Non-U.S. Gov't
Calcium: ME, metabolism
Cell Differentiation: DE, drug effects
Cell Division: DE, drug effects
Cell Line, Transformed
Cytoskeletal Proteins: GE, genetics
*Cytoskeletal Proteins: PH, physiology
Enzyme Inhibitors: PD, pharmacology
GABA: PD, pharmacology
Gene Expression Regulation
*Gonadorelin: BL, blood
*Hypothalamus: UL, ultrastructure
Luminescent Proteins: GE, genetics
Muscimol: PD, pharmacology
Naphthalenes: PD, pharmacology
*Neurites: DE, drug effects
*Neurites: PH, physiology
***Neurons: UL, ultrastructure**
Protein Kinase C: AI, antagonists & inhibitors
RNA, Messenger: AN, analysis
Receptors, GABA-A: DE, drug effects
Receptors, GABA-A: PH, physiology
Reverse Transcriptase Polymerase Chain Reaction
*Tetradecanoylphorbol Acetate: PD, pharmacology
Transfection

RN 121263-19-2 (calphostin C); 146409-33-8 (beta catenin); 147336-22-9 (green fluorescent protein); 16561-29-8 (Tetradecanoylphorbol Acetate); 2763-96-4 (Muscimol); 33515-09-2 (Gonadorelin); 56-12-2 (GABA); 7440-70-2 (Calcium)

CN 0 (Cytoskeletal Proteins); 0 (Enzyme Inhibitors); 0 (**Luminescent** Proteins); 0 (Naphthalenes); 0 (RNA, Messenger); 0 (Receptors, GABA-A); EC 2.7.1.- (Protein Kinase C)

L5 ANSWER 3 OF 10 MEDLINE
AN 2001196687 MEDLINE
DN 21128125 PubMed ID: 11222639
TI Cytoplasmic domain mutations of the L1 cell adhesion molecule reduce L1-ankyrin interactions.
AU Needham L K; Thelen K; Maness P F
CS Department of Biochemistry, School of Medicine, University of North Carolina, Chapel Hill, North Carolina 27599-7260, USA.
NC AA 11605 (NIAAA)
HD 35170 (NICHD)

cytoskeletal protein ankyrin. In a cellular ankyrin recruitment assay that uses transfected human embryonic kidney (HEK) 293 **cells**, two of the pathologic mutations located within the conserved SFIGQY sequence (S1224L and Y1229H) strikingly reduced the ability of L1 to recruit 270 kDa ankyrinG protein that was tagged with green fluorescent protein (ankyrin-GFP) to the plasma membrane. In contrast, the L1 missense mutation S1194L and an L1 isoform lacking the neuron-specific sequence RSLE in the cytoplasmic domain were as effective as RSLE-containing neuronal L1 in the recruitment of ankyrin-GFP. Ankyrin binding by L1 was independent of cell-cell interactions. Receptor-mediated endocytosis of L1 regulates intracellular signal transduction, which is necessary for **neurite outgrowth**. In rat B35 neuroblastoma cell lines stably expressing L1 missense mutants, antibody-induced endocytosis was unaffected by S1224L or S1194L mutations but appeared to be enhanced by the Y1229H mutation. These results suggested a critical role for tyrosine residue 1229 in the regulation of L1 endocytosis. In conclusion, specific mutations within key residues of the cytoplasmic domain of L1 (Ser(1224), Tyr(1229)) destabilize normal L1-ankyrin interactions and may influence L1 endocytosis to contribute to the mechanism of neuronal dysfunction in human X-linked mental retardation.

CT Check Tags: Animal; Human; Support, Non-U.S. Gov't; Support, U.S. Gov't, P.H.S.
*Ankyrins: ME, metabolism
Cell Line
Conserved Sequence: GE, genetics
Cytoplasm: ME, metabolism
Endocytosis: GE, genetics
*Heredodegenerative Disorders, Nervous System: GE, genetics
Heredodegenerative Disorders, Nervous System: ME, metabolism
Luminescent Proteins: GE, genetics
*Membrane Glycoproteins: GE, genetics
*Membrane Glycoproteins: ME, metabolism
*Mental Retardation: GE, genetics
Mental Retardation: ME, metabolism
Mutation, Missense
*Neural Cell Adhesion Molecules: GE, genetics
*Neural Cell Adhesion Molecules: ME, metabolism
Neuroblastoma: ME, metabolism
Neurons: CY, cytology
Neurons: ME, metabolism
Protein Binding: GE, genetics
Protein Structure, Tertiary: GE, genetics
Rats
Recombinant Fusion Proteins: GE, genetics
Recombinant Fusion Proteins: ME, metabolism
Sequence Deletion
Signal Transduction: GE, genetics
Syndrome
Transfection
X Chromosome: GE, genetics
RN 147336-22-9 (green fluorescent protein)
CN 0 (Ankyrins); 0 (L1 antigen); 0 (**Luminescent** Proteins); 0 (Membrane Glycoproteins); 0 (Neural Cell Adhesion Molecules); 0 (Recombinant Fusion Proteins)

L5 ANSWER 4 OF 10 MEDLINE
AN 2001093959 MEDLINE
DN 20573785 PubMed ID: 11124711
TI The predominant form in which neurofilament subunits undergo axonal transport varies during axonal initiation, elongation, and maturation.
AU Yabe J T; Chan W K; Chylinski T M; Lee S; Pimenta A F; Shea T B
CS Center for Cellular Neurobiology and Neurodegeneration Research, Department of Biological Sciences, University of Massachusetts-Lowell, Lowell, USA.
SO CELL MOTILITY AND THE CYTOSKELETON, (2001 Jan) 48 (1) 61-83. Journal code: CRD. ISSN: 0886-1544.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200101
ED Entered STN: 20010322

for vimentin, that punctate structures represent precursors for intermediate filament formation. Since these prior studies were conducted at markedly differing neuronal differentiation states, we tested the alternate hypothesis that these differing results reflected developmental alterations in NF dynamics that accompany various stages of neuritogenesis. We conducted time-course analyses of transfected NB2a/d1 **cells**, including monitoring of transfected **cells** over several days, as well as transfecting **cells** at varying intervals prior to and following induction of differentiation and axonal **neurite outgrowth**. GFP-conjugated subunits were predominantly filamentous during the period of most robust axonal outgrowth and NF accumulation, and presented a mixed profile of punctate and filamentous forms prior to neuritogenesis and following the developmental slowing of **neurite outgrowth**. These analyses demonstrate that NF subunits are capable of undergoing axonal transport in multiple forms, and that the predominant form in which NF subunits undergo axonal transport varies in accord with the rate of axonal elongation and accumulation of NFs within developing axons.

CT Check Tags: Animal; Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.
*Axonal Transport: PH, physiology
*Axons: PH, physiology
Cell Differentiation
Cells, Cultured
Cysteine Proteinase Inhibitors: PD, pharmacology
Cytoskeleton: DE, drug effects
Cytoskeleton: ME, metabolism
Densitometry
Detergents: PD, pharmacology
Dipeptides: PD, pharmacology
Immunohistochemistry
Luminescent Proteins: ME, metabolism
Neurofilament Proteins: CH, chemistry
Neurofilament Proteins: GE, genetics
*Neurofilament Proteins: ME, metabolism
Neurons: CY, cytology
***Neurons: PH, physiology**
Nocodazole: PD, pharmacology
Protein Subunits
Rats
Recombinant Fusion Proteins: ME, metabolism
Superior Cervical Ganglion: CY, cytology
Transfection

RN 117591-20-5 (calpeptin); 147336-22-9 (green fluorescent protein); 31430-18-9 (Nocodazole)

CN 0 (Cysteine Proteinase Inhibitors); 0 (Detergents); 0 (Dipeptides); 0 (**Luminescent** Proteins); 0 (Neurofilament Proteins); 0 (Protein Subunits); 0 (Recombinant Fusion Proteins)

L5 ANSWER 5 OF 10 MEDLINE

AN 2001034057 MEDLINE

DN 20527461 PubMed ID: 11078024

TI Oxidative stress and hypoxia-like injury cause Alzheimer-type molecular abnormalities in central nervous system **neurons**.

AU de la Monte S M; Neely T R; Cannon J; Wands J R

CS Department of Medicine, Rhode Island Hospital, Brown University School of Medicine, Providence 02903, USA.. delamonte@hotmail.com

NC AA-02666 (NIAAA)
AA-10102 (NIAAA)

SO CELLULAR AND MOLECULAR LIFE SCIENCES, (2000 Sep) 57 (10) 1471-81. Journal code: CLE. ISSN: 1420-682X.

CY Switzerland

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 200011

ED Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001130

AB Neuronal loss and neuritic/cytoskeletal lesions (synaptic disconnection and proliferation of dystrophic neurites) represent major dementia-associated abnormalities in Alzheimer's disease (AD). This study

disconnection), and impaired transport of mitochondria to cell processes where they are likely required for synaptic function. In contrast, hypoxia-type injury causes neuronal loss with proliferation of neurites (sprouting), impaired mitochondrial function, and reduced expression of molecules required to form and maintain synaptic connections. Since similar abnormalities occur in AD, both oxidative stress and hypoxic injury can contribute to AD neurodegeneration.

CT Check Tags: Animal; Support, Non-U.S. Gov't; Support, U.S. Gov't, P.H.S.
*Alzheimer Disease: ET, etiology
Alzheimer Disease: PA, pathology
Antigens, CD95: BI, biosynthesis
Apoptosis
Cell Division
Cell Hypoxia
Cell Survival: DE, drug effects
Cells, Cultured
*Central Nervous System: PA, pathology
Cytochrome-c Oxidase: BI, biosynthesis
Deferoxamine: PD, pharmacology
Fluorescent Dyes
Free Radicals
Gene Expression
Hydrogen Peroxide: PD, pharmacology
Luminescent Proteins
Mitochondria: DE, drug effects
Mitochondria: ME, metabolism
Nerve Degeneration
***Neurons: PA, pathology**
*Oxidative Stress
Rats

RN 147336-22-9 (green fluorescent protein); 70-51-9 (Deferoxamine); 7722-84-1 (Hydrogen Peroxide)

CN 0 (Antigens, CD95); 0 (Fluorescent Dyes); 0 (Free Radicals); 0 (**Luminescent** Proteins); 0 (red dye CMXRos); EC 1.9.3.1 (Cytochrome-c Oxidase)

L5 ANSWER 6 OF 10 MEDLINE
AN 2000167061 MEDLINE
DN 20167061 PubMed ID: 10700616
TI Regulation of retinal neurite growth by alterations in MAPK/ERK kinase (MEK) activity.
AU Dimitropoulou A; Bixby J L
CS Neuroscience Program, University of Miami School of Medicine, 1600 NW 10 Avenue, Miami, FL 33136, USA.
NC NS36773 (NINDS)
SO BRAIN RESEARCH, (2000 Mar 6) 858 (1) 205-14.
Journal code: B5L; 0045503. ISSN: 0006-8993.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200004
ED Entered STN: 20000505
Last Updated on STN: 20000505
Entered Medline: 20000425

AB Activation of the extracellular-signal regulated kinase (ERK) cascade may be involved in the promotion of **neurite outgrowth** by a variety of stimuli. For example, we have previously shown that laminin (LN) and N-cadherin activate ERK2 in chick retinal **neurons**, and that pharmacological inhibition of MAPK/ERK kinase (MEK), the major upstream ERK2 activator, severely impairs neurite growth induced by these proteins. We have therefore hypothesized that ERK activation through MEK is required for optimal induction of neurite growth by these proteins. Here we show that expression of mutant MEK in transfected retinal **neurons** alters neuronal responses to LN in a manner consistent with this hypothesis. **Neurons** expressing a constitutively active MEK construct extended longer neurites on LN than controls, while **neurons** transfected with a dominant negative construct extended shorter neurites. Further, experiments in which transfected **neurons** were replated onto polylysine substrates suggest that activation of MEK is sufficient for neurite promotion on a non-inducing substrate, and **neurons** replated onto LN confirm the

*Neurites: EN, enzymology
Neurons: CY, cytology
Neurons: DE, drug effects
Neurons: EN, enzymology
Retina: CY, cytology
Retina: EM, embryology
*Retina: EN, enzymology
Signal Transduction: GE, genetics
Transfection
RN 147336-22-9 (green fluorescent protein)
CN 0 (Laminin); 0 (**Luminescent** Proteins); EC 2.7.10.- (Mitogen-Activated Protein Kinase Kinases)

L5 ANSWER 7 OF 10 MEDLINE
AN 2000121727 MEDLINE
DN 20121727 PubMed ID: 10658640
TI Differential neurite growth on astrocyte substrates: interspecies facilitation in green fluorescent protein-transfected rat and human **neurons**.
AU van den Pol A N; Spencer D D
CS Department of Neurosurgery, Yale University School of Medicine, New Haven, CT 06520, USA.
NC NS 10174 (NINDS)
NS 30619 (NINDS)
NS 37788 (NINDS)
SO NEUROSCIENCE, (2000) 95 (2) 603-16.
Journal code: NZR; 7605074. ISSN: 0306-4522.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200002
ED Entered STN: 20000314
Last Updated on STN: 20000314
Entered Medline: 20000229
AB In the present study, we used co-culture of astrocytes from one species with **neurons** from a different species to examine neuritic outgrowth. We include a focus on human **cells**. Three types of neuron were used, including rat hippocampal dentate granule **cells**, rat hypothalamic **neurons** and human cortical **neurons**. To visualize neuronal processes, **neurons** were either immunostained with GABA antiserum or transfected with the jellyfish green fluorescent protein gene. The entire axonal and dendritic fields of single **neurons** could be quantitatively analysed based on their strong green fluorescent protein label. Astrocytes were obtained from rat hippocampus or hypothalamus, chicken cortex, normal human cortex, human cortex lesion, and from the sclerotic human hippocampus after surgery for intractable temporal lobe epilepsy. In the absence of astrocytes, isolated **neurons** died within three to four days. In contrast, **neurons** from both rat and human brains survived and extended dendrites and axons on rat, chicken and human astrocytes or in their conditioned medium. Astrocytes from interspecies cultures were not only capable of enhancing the survival of neuron co-cultures, but neuronal neurite extension in some cases was even greater on heterospecific astrocytes than on homospecific astrocytes. To support the hypothesis that synaptogenesis of rat hippocampal **neurons** was accelerated by a substrate of human astrocytes, we used a functional assay based on time-lapse confocal laser or digital imaging of calcium responses to transmitter release; synaptic responses were found earlier when rat **neurons** were grown on rat or human astrocytes than in the absence of these astrocytes. These data indicate that rodent glial **cells** enhance human neurite extension, and that rat **neurite outgrowth** can be used as a type of bioassay for the neurite promoting capacity of different derivations of human glia.
CT Check Tags: Animal; Human; Support, Non-U.S. Gov't; Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.
2-Amino-5-phosphonovalerate: PD, pharmacology
6-Cyano-7-nitroquinoxaline-2,3-dione: PD, pharmacology
*Astrocytes: CY, cytology
Axons: PH, physiology
Cell Communication: PH, physiology
*Cell Culture: MT, methods

Synapses: PH, physiology
Transfection: MT, methods

RN 115066-14-3 (6-Cyano-7-nitroquinoxaline-2,3-dione); 147336-22-9 (green fluorescent protein); 76726-92-6 (2-Amino-5-phosphonovalerate)

CN 0 (DNA, Complementary); 0 (Excitatory Amino Acid Agonists); 0 (Indicators and Reagents); 0 (**Luminescent** Proteins); 0 (Plasmids)

L5 ANSWER 8 OF 10 MEDLINE

AN 1998412513 MEDLINE

DN 98412513 PubMed ID: 9741482

TI Early synaptogenesis in vitro: role of axon target distance.

AU van den Pol A N; Obrietan K; Belousov A B; Yang Y; Heller H C

CS Department of Neurosurgery, Yale University School of Medicine, New Haven, Connecticut 06520, USA.. Anthony.vandenpol@Yale.Edu

NC NS 10174 (NINDS)
NS 31573 (NINDS)
NS 34887 (NINDS)

SO JOURNAL OF COMPARATIVE NEUROLOGY, (1998 Oct 5) 399 (4) 541-60.
Journal code: HUV; 0406041. ISSN: 0021-9967.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199811

ED Entered STN: 19990106
Last Updated on STN: 19990106
Entered Medline: 19981113

AB In contrast to some previous reports suggesting a delay in synapse formation in vitro, we found that under ideal conditions, most hippocampal and hypothalamic rat **neurons** were synaptically coupled after 3 or 4 days in vitro. Synaptophysin immunocytochemistry revealed strongly stained presynaptic boutons by 3 days in vitro. Studies with time-lapse laser confocal imaging of FM1-43 revealed that axonal boutons were recycling their synaptic vesicles, an indication of synapse formation, as early as 3 days after plating. To test the hypothesis that **neurite outgrowth** was enhanced in high-density cultures, thereby increasing the probability of synapse formation, **neurons** were transfected with the jellyfish green fluorescent protein (GFP) gene. After 2 days in high-density cultures, green fluorescent neurites were about three times longer than in sister **neurons** plated in low-density cultures. Even in single dishes, GFP-transfected **cells** in contact with other **neurons** had neurites that were at least three times longer and grew faster than more isolated **cells**. **Neurons** grew longer neurites (+51%) when growing on surface membranes of heat-killed **neurons** than on polylysine, underlining the importance of plasma membrane contact. Calcium imaging with fura-2 and whole cell recording showed that both GABA and glutamate presynaptic release occurred after 3 or 4 days in vitro in high-density cultures but was absent in low-density cultures at this time. Together, these morphological, cytochemical, and physiological data suggest that the distance an axon must grow to find a postsynaptic partner plays a substantial role in the timing of synapse formation. Although other factors in vitro may also play a role, the distance to a postsynaptic target, which defines the interval during which an axon grows to its target, can probably account for much of the difference in timing of synapse formation previously reported in vitro. A short intercell distance may increase the concentration of limited amounts of trophic factors available to a nearby cell, and once contact is made, a neuronal membrane provides a superior substrate for neuritic elongation.

CT Check Tags: Animal; Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.
2-Amino-5-phosphonovalerate: PD, pharmacology
6-Cyano-7-nitroquinoxaline-2,3-dione: PD, pharmacology
Action Potentials: DE, drug effects
Action Potentials: PH, physiology
Axons: CH, chemistry
*Axons: PH, physiology
Bicuculline: PD, pharmacology
Calcium: AN, analysis
Calcium: PH, physiology
Cell Count
Cells, Cultured
Electric Stimulation

Rats, Sprague-Dawley
Synapses: DE, drug effects
*Synapses: PH, physiology
Synaptic Transmission: DE, drug effects
Synaptic Vesicles: CH, chemistry
Synaptophysin: AN, analysis
Tetrodotoxin: PD, pharmacology

RN 115066-14-3 (6-Cyano-7-nitroquinoxaline-2,3-dione); 147336-22-9 (green fluorescent protein); 4368-28-9 (Tetrodotoxin); 485-49-4 (Bicuculline); 56-12-2 (GABA); 56-86-0 (Glutamic Acid); 7440-70-2 (Calcium); 76726-92-6 (2-Amino-5-phosphonovalerate); 96314-98-6 (Fura-2)

CN 0 (Excitatory Amino Acid Antagonists); 0 (Fluorescent Dyes); 0 (GABA Antagonists); 0 (Indicators and Reagents); 0 (**Luminescent** Proteins); 0 (Synaptophysin)

L5 ANSWER 9 OF 10 CANCERLIT

AN 2001128125 CANCERLIT

DN 21128125

TI Cytoplasmic domain mutations of the L1 cell adhesion molecule reduce L1-ankyrin interactions.

AU Needham L K; Thelen K; Maness P F

CS Department of Biochemistry, School of Medicine, University of North Carolina, Chapel Hill, North Carolina 27599-7260, USA.

NC AA 11605 (NIAAA)
HD 35170 (NICHD)
NS 26620 (NINDS)

SO DOO, (2001). Vol. 21, No. 5, pp. 1490-500.
Journal code: DOO. ISSN: 1529-2401.

DT Journal; Article; (JOURNAL ARTICLE)

FS MEDL; L; I

LA English

OS MEDLINE 21128125

EM 200104

AB The neural adhesion molecule L1 mediates the axon outgrowth, adhesion, and fasciculation that are necessary for proper development of synaptic connections. L1 gene mutations are present in humans with the X-linked mental retardation syndrome CRASH (corpus callosum hypoplasia, retardation, aphasia, spastic paraplegia, hydrocephalus). Three missense mutations associated with CRASH syndrome reside in the cytoplasmic domain of L1, which contains a highly conserved binding region for the cytoskeletal protein ankyrin. In a cellular ankyrin recruitment assay that uses transfected human embryonic kidney (HEK) 293 **cells**, two of the pathologic mutations located within the conserved SFIGQY sequence (S1224L and Y1229H) strikingly reduced the ability of L1 to recruit 270 kDa ankyrinG protein that was tagged with green fluorescent protein (ankyrin-GFP) to the plasma membrane. In contrast, the L1 missense mutation S1194L and an L1 isoform lacking the neuron-specific sequence RSLE in the cytoplasmic domain were as effective as RSLE-containing neuronal L1 in the recruitment of ankyrin-GFP. Ankyrin binding by L1 was independent of cell-cell interactions. Receptor-mediated endocytosis of L1 regulates intracellular signal transduction, which is necessary for **neurite outgrowth**. In rat B35 neuroblastoma cell lines stably expressing L1 missense mutants, antibody-induced endocytosis was unaffected by S1224L or S1194L mutations but appeared to be enhanced by the Y1229H mutation. These results suggested a critical role for tyrosine residue 1229 in the regulation of L1 endocytosis. In conclusion, specific mutations within key residues of the cytoplasmic domain of L1 (Ser(1224), Tyr(1229)) destabilize normal L1-ankyrin interactions and may influence L1 endocytosis to contribute to the mechanism of neuronal dysfunction in human X-linked mental retardation.

CT Check Tags: Animal; Human; Support, Non-U.S. Gov't; Support, U.S. Gov't, P.H.S.

*Ankyrins: ME, metabolism
Cell Line
Conserved Sequence: GE, genetics
Cytoplasm: ME, metabolism
Endocytosis: GE, genetics
*Heredodegenerative Disorders, Nervous System: GE, genetics
Heredodegenerative Disorders, Nervous System: ME, metabolism
Luminescent Proteins: GE, genetics
*Membrane Glycoproteins: GE, genetics
*Membrane Glycoproteins: ME, metabolism

RN 147336-22-9 (green fluorescent protein)
CN 0 (Ankyrins); 0 (L1 antigen); 0 **(Luminescent Proteins)**; 0 (Membrane Glycoproteins); 0 (Neural Cell Adhesion Molecules); 0 (Recombinant Fusion Proteins)

L5 ANSWER 10 OF 10 CANCERLIT
AN 1998412513 CANCERLIT
DN 98412513
TI Early synaptogenesis in vitro: role of axon target distance.
AU van den Pol A N; Obrietan K; Belousov A B; Yang Y; Heller H C
CS Department of Neurosurgery, Yale University School of Medicine, New Haven, Connecticut 06520, USA. Anthony.vandenpol@Yale.Edu
NC NS 34887 (NINDS)
NS 31573 (NINDS)
NS 10174 (NINDS)
SO JOURNAL OF COMPARATIVE NEUROLOGY, (1998). Vol. 399, No. 4, pp. 541-60. Journal code: HUV. ISSN: 0021-9967.
DT Journal; Article; (JOURNAL ARTICLE)
FS MEDL; L; Priority Journals
LA English
OS MEDLINE 98412513
EM 199812
AB In contrast to some previous reports suggesting a delay in synapse formation in vitro, we found that under ideal conditions, most hippocampal and hypothalamic rat **neurons** were synaptically coupled after 3 or 4 days in vitro. Synaptophysin immunocytochemistry revealed strongly stained presynaptic boutons by 3 days in vitro. Studies with time-lapse laser confocal imaging of FM1-43 revealed that axonal boutons were recycling their synaptic vesicles, an indication of synapse formation, as early as 3 days after plating. To test the hypothesis that **neurite outgrowth** was enhanced in high-density cultures, thereby increasing the probability of synapse formation, **neurons** were transfected with the jellyfish green fluorescent protein (GFP) gene. After 2 days in high-density cultures, green fluorescent neurites were about three times longer than in sister **neurons** plated in low-density cultures. Even in single dishes, GFP-transfected **cells** in contact with other **neurons** had neurites that were at least three times longer and grew faster than more isolated **cells**. **Neurons** grew longer neurites (+51%) when growing on surface membranes of heat-killed **neurons** than on polylysine, underlining the importance of plasma membrane contact. Calcium imaging with fura-2 and whole cell recording showed that both GABA and glutamate presynaptic release occurred after 3 or 4 days in vitro in high-density cultures but was absent in low-density cultures at this time. Together, these morphological, cytochemical, and physiological data suggest that the distance an axon must grow to find a postsynaptic partner plays a substantial role in the timing of synapse formation. Although other factors in vitro may also play a role, the distance to a postsynaptic target, which defines the interval during which an axon grows to its target, can probably account for much of the difference in timing of synapse formation previously reported in vitro. A short intercell distance may increase the concentration of limited amounts of trophic factors available to a nearby cell, and once contact is made, a neuronal membrane provides a superior substrate for neuritic elongation.
CT Check Tags: Animal; Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.
Action Potentials: DE, drug effects
Action Potentials: PH, physiology
Axons: CH, chemistry
*Axons: PH, physiology
Bicuculline: PD, pharmacology
Calcium: AN, analysis
Calcium: PH, physiology
Cell Count
Cells, Cultured
Electric Stimulation
Excitatory Amino Acid Antagonists: PD, pharmacology
Fluorescent Dyes
Fura-2
Glutamic Acid: PH, physiology
GABA: PH, physiology
GABA Antagonists: PD, pharmacology
Hippocampus: CY, cytology

2-Amino-5-phosphonovalerate: PD, pharmacology
6-Cyano-7-nitroquinoxaline-2,3-dione: PD, pharmacology

RN 115066-14-3 (6-Cyano-7-nitroquinoxaline-2,3-dione); 147336-22-9 (green fluorescent protein); 4368-28-9 (Tetrodotoxin); 485-49-4 (Bicuculline); 56-12-2 (GABA); 56-86-0 (Glutamic Acid); 7440-70-2 (Calcium); 76726-92-6 (2-Amino-5-phosphonovalerate); 96314-98-6 (Fura-2)

CN 0 (Excitatory Amino Acid Antagonists); 0 (Fluorescent Dyes); 0 (GABA Antagonists); 0 (Indicators and Reagents); **0 (Luminescent Proteins)**; 0 (Synaptophysin)

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(FILE 'HOME' ENTERED AT 20:59:22 ON 27 JUL 2001)

FILE 'BIOSIS, CAPLUS, EMBASE, MEDLINE, CANCERLIT' ENTERED AT 20:59:34 ON 27 JUL 2001

L1	38641	S	NEURITE
L2	15742	S	(NEURITE OUTGROWTH)
L3	7234	S	L2 AND NEURONS
L4	4869	S	L3 AND CELLS
L5	10	S	L4 AND LUMINESCENT?